Environment and Forestry Directorate

Consultation on the draft Private and Public Water Supplies (Miscellaneous Amendments) (Scotland) Regulations 2015

July 2015

The Scottish Government
Riaghaltas na h-Alba

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1. Introduction

1.1 The Scottish Ministers are seeking comments on proposals to transpose Council Directive 2013/51/Euratom ("the new Directive") which sets out requirements for the protection of the health of the general public with regard to radioactive substances in water intended for human consumption. The Scottish Government has produced draft Private and Public Water Supplies (Miscellaneous Amendments) (Scotland) Regulations 2015.

1.2 Please note that these regulations do not transpose the new Directive with regards to bottled drinking water for sale. This is transposed in other legislation.

1.3 We welcome views on the draft Private and Public Water Supplies (Miscellaneous Amendments) (Scotland) Regulations 2015 which introduce additional monitoring requirements for radioactive substances in drinking water.

1.4 This consultation will run from 3rd July 2015 to 28th August 2015.

1.5 Please return comments to:

By email: regulator@dwqr.org.uk

Or by post to:
Eleanor Vance
Drinking Water Quality Division
1D - South
Victoria Quay
Edinburgh
EH6 6QQ

1.6 This consultation, and all other Scottish Government consultation papers, can be viewed online on the consultation web pages of the Scottish Government website at http://www.scotland.gov.uk/consultations.

1.7 When responding please clearly indicate which questions or parts of the consultation paper you are responding to. This will aid our analysis of the responses received.

1.8 When responding you **must** complete the **Respondent Information Form** and return it to us with your response (please see **handling your response** below).

1.9 We need to know how you wish your response to be handled and, in particular, whether you are happy for your response to be made public. Your

completed **Respondent Information Form**, which forms part of the consultation questionnaire, will help us to treat your response appropriately. If you ask for your response not to be published we will regard it as confidential and we will treat it accordingly.

1.10 All respondents should be aware that the Scottish Government is subject to the provisions of the Freedom of Information (Scotland) Act 2002 and so would have to consider any request made to it under the Act for information relating to responses made to this consultation exercise.

1.11 If you have any comments about how this consultation exercise has been conducted, please send them to the contact details above.

2. Background

2.1 In Scotland, drinking water is supplied by either Scottish Water ("a public supply") or someone else ("a private supply"). The quality of drinking water supplied by Scottish Water is regulated by the Public Water Supplies (Scotland) Regulations 2014 ("the 2014 Regulations"). The quality of drinking water supplied by anyone else is regulated by the Private Water Supplies (Scotland) Regulations 2006 ("the 2006 Regulations"). Together, these regulations implement Council Directive 98/83/EC on the quality of water intended for human consumption ("the Drinking Water Directive").

2.2 The Drinking Water Directive requires water which is intended for human consumption (regardless of who supplies it) to be monitored for, among other things, tritium and total indicative dose (TID) unless there is evidence that the levels are well below a particular value for each set out in the Directive.

2.3 The 2006 Regulations and the 2014 Regulations implement this requirement including minimum monitoring frequencies. The monitoring may be either in water supply zones or at supply points such as treatment works. Sampling frequencies vary from one to eight times per annum in zones depending on the population supplied. There is also provision for Scottish Water or local authorities not to monitor should Scottish Ministers give notice that the supply need not be monitored when they are satisfied the concentration is well below the parametric value.

2.4 Council Directive 2013/51/Euratom ("the new Directive") makes broadly parallel provision for the protection of the health of the general public with regard to radioactive substances in water intended for human consumption. In particular, it sets out parametric values, and frequencies and performance characteristics for analytical methods for monitoring radioactive substances in water intended for human consumption. The values for tritium and TID mirror those in the Drinking Water Directive but the new Directive sets out the monitoring options in more detail. The requirement to fix a value for radon is new, along with requirement to carry out monitoring.

2.5 Monitoring frequencies for tritium and TID in the new Directive mirror those set out in the Drinking Water Directive. As indicated however, the monitoring requirement for radon is new. Member States are not required to monitor where it can be demonstrated that level of each is well below the respective parametric value. Demonstration will be on the basis of representative surveys, monitoring data and/or other reliable information.

2.6 Where there is reason to believe from findings of any representative surveys or from other reliable information sources, that radon or other radioactive substances may be present at levels that could exceed the parametric values, monitoring must be carried out at the frequencies set down in the new Directive.

3. Proposals

3.1 It is proposed that the 2006 Regulations and the 2014 Regulations are amended to insert provisions to implement the new Directive (so as to supplement the existing provisions which implement the Drinking Water Directive).

3.2 Transposition of the Directive requires no changes to the current definition of human consumption; the current scope and exemptions; and points of compliance, which are already defined in the 2006 and 2014 Regulations.

3.3 It is proposed to insert two new schedules into the 2006 Regulations. Schedule 2A sets out the general principles and monitoring frequencies, specifying in more detail the requirements in relation to radon, tritium, indicative dose. Schedule 3A sets out the requirements for screening strategies; calculation of indicative dose and analytical performance characteristics. This approach is mirrored for the 2014 Regulations with the addition of two new schedules.

Question 1: Do you have any comments on the way in which we propose to further transpose this Directive?

3.4 The new Directive requires a threshold value to be set for radon which, if exceeded, would then require an assessment of whether there is any risk to human health. More specifically, “Member States may set a level for radon which is judged inappropriate to be exceeded and below which optimisation of protection should be continued, without compromising water supply on a national or regional scale. The level set by a Member State may be higher than 100 Bq/l but lower than 1,000 Bq/l. In order to simplify national legislation, Member States may choose to adjust the parametric value to this level.” It is proposed that this threshold value be set at 100 Bq/l.

Question 2: Do you agree with the proposed threshold value of 100 Bq/l for radon?

4. Impact

4.1 The most significant change brought by these Regulations is the need to monitor for radon in drinking water supplies. The Scottish Government has carried out a research project during 2014/15 to determine those supplies that will most likely require monitoring due to the characteristics of the source water and the geology of the area. It is likely that only ground waters in very specific parts of Scotland will require monitoring. A draft Business and Regulatory Impact Assessment (BRIA) is attached at Annex D.

Question 3: With reference to the draft BRIA do you think that the proposal may impact on businesses, the third sector (voluntary) or any other relevant areas?

Your views are sought on what we are proposing in this consultation.

ANNEX A

CONSULTATION ON THE PRIVATE AND PUBLIC WATER SUPPLIES (MISCELLANEOUS AMENDMENTS) (SCOTLAND) REGULATIONS 2015

The Scottish Government
Riaghaltas na h-Alba

RESPONDENT INFORMATION FORM

Please Note this form **must** be returned with your response to ensure that we handle your response appropriately

1. Name/Organisation

Organisation Name

Title Mr ☐ Ms ☐ Mrs ☐ Miss ☐ Dr ☐ ***Please tick as appropriate***

Surname

Forename

2. Postal Address

Postcode	**Phone**	**Email**

3. Permissions - I am responding as…

Individual	/	**Group/Organisation**
☐	**Please tick as appropriate**	☐

(a)	Do you agree to your response being made available to the public (in Scottish Government library and/or on the Scottish Government web site)? **Please tick as appropriate** ☐ **Yes** ☐ **No**	**(c)** The name and address of your organisation **will be** made available to the public (in the Scottish Government library and/or on the Scottish Government web site).
(b)	Where confidentiality is not requested, we will make your responses available to the public on the following basis	Are you content for your **response** to be made available?

Please tick ONE of the following boxes	Please tick as appropriate ☐ Yes ☐ No
Yes, make my response, name and address all available ☐ **or** Yes, make my response available, but not my name and address ☐ **or** Yes, make my response and name available, but not my address ☐	

(d) We will share your response internally with other Scottish Government policy teams who may be addressing the issues you discuss. They may wish to contact you again in the future, but we require your permission to do so. Are you content for Scottish Government to contact you again in relation to this consultation exercise?

Please tick as appropriate ☐ **Yes** ☐ **No**

ANNEX B

CONSULTATION QUESTIONS

Q1 Do you have any comments on the way in which we propose to further transpose this Directive?

Yes ☐ No ☐ Don't Know ☐

If "Yes" please provide enter your comments below.

Comments

Q2 Do you agree with the proposed threshold value of* 100 Bq/l f*or radon?

Yes ☐ No ☐ Don't Know ☐

Please provide reasons for your answer.

Comments

Q3: ***With reference to the draft BRIA do you think that the proposal may impact on businesses, the third sector (voluntary) or any other relevant areas?***

Yes ☐ No ☐ Don't Know ☐

If "Yes" please provide reasons for your answer.

Comments

ANNEX C

Draft Private and Public Water Supplies (Miscellaneous Amendments) (Scotland) Regulations 2015

SCOTTISH STATUTORY INSTRUMENTS

2015 No.

WATER SUPPLY

The Private and Public Water Supplies (Miscellaneous Amendments) (Scotland) Regulations 2015

Made - - - -	*2015*
Laid before the Scottish Parliament	*2015*
Coming into force - -	*28th November 2015*

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PUBLIC WATER SUPPLIES (SCOTLAND) REGULATIONS 2014

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The Scottish Ministers make the following Regulations in exercise of the powers conferred by sections 76B, 76F(5) to (8), 101(1) and (1A) and 109(1) of the Water (Scotland) Act 1980(**a**) and section 2(2) of the European Communities Act 1972(**b**) and of all other powers enabling them to do so(**c**).

There has been a consultation as required by Article 9 of Regulation (EC) No 178/2002 of the European Parliament and of the Council laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety(**d**).

PART 1

GENERAL

Citation, commencement and extent

1.—(1) These Regulations may be cited as the Private and Public Water Supplies (Miscellaneous Amendments) (Scotland) Regulations 2015 and come into force on 28th November 2015.

(2) These Regulations extend to Scotland only.

Interpretation

2. In these Regulations—

"the 2006 Regulations" means the Private Water Supplies (Scotland) Regulations 2006(**e**); and

"the 2014 Regulations" means the Public Water Supplies (Scotland) Regulations 2014(**f**).

(**a**) 1980 c.45. Sections 76B and 76F(5) and (6) were inserted by section 168 of, and Schedule 22 to, the Water Act 1989 (c.15) and section 76F(7) and (8) was inserted by section 114 of the Local Government etc. (Scotland) Ac 1994 (c.39). Section 76B was amended by section 56(2) of the Food Safety Act 1990 (c.16) and paragraph 50 of schedule 6 to the Water Industry (Scotland) Act 2002. Section 76F(5) was amended by paragraph 119(42) of Schedule 13 to the Local Government etc. (Scotland) Act 1994 (c.39). Section 101(1A) was inserted by section 27(1) of, and paragraph 9(5) of Schedule 10 to, the Natural Heritage (Scotland) Act 1991 (c.28). The definition of "prescribed" in section 109(1) was amended by paragraph 38(f) of Schedule 11 to the Local Government Finance Act 1992 (c.14).

(**b**) 1972 c.68. Section 2(2) was amended by the Scotland Act 1998 (c.46) ("the 1998 Act"), Schedule 8, paragraph 15(3) (which was amended by section 27(4) of the Legislative and Regulatory Reform Act 2006 (c.51) ("the 2006 Act")). Section 2(2) was also amended by section 27(1)(a) of the 2006 Act and by the European Union (Amendment) Act 2008 (c.7) ("the 2008 Act"), Schedule, Part 1. The functions conferred upon the Minister of the Crown under section 2(2), insofar as within devolved competence, were transferred to the Scottish Ministers by virtue of section 53 of the 1998 Act. Section 2(2) is cited to enable provision in relation to the matters listed in the penultimate paragraph of the explanatory note to these Regulations.

(**c**) The powers to make these Regulations are exercised together by virtue of section 33(2) of the Interpretation and Legislative Reform (Scotland) Act 2010 (asp 10). These Regulations are subject to the affirmative procedure by virtue of section 33(3) of that Act.

(**d**) OJ L 31, 1.2.2002, p.1, to which there are no relevant amendments to Article 9.

(**e**) S.S.I. 2006/209, as amended by S.S.I. 2010/95 and 2014/364.

(**f**) S.S.I. 2014/364, as amended by S.S.I. 2015/100.

PART 2

PRIVATE WATER SUPPLIES (SCOTLAND) REGULATIONS 2006

Amendment of regulation 2

3. In regulation 2(1) (interpretation) of the 2006 Regulations, after the definition of "state" insert—

> ""total indicative dose" means the committed effective dose for one year of ingestion resulting from all radionuclides whose presence has been detected in a supply of water intended for human consumption purposes, of natural and artificial origin, but excluding tritium, potassium-40, radon and short-lived radon decay products;".

Amendment of regulation 21

4. In regulation 21 (monitoring duties and powers) of the 2006 Regulations—

(a) in paragraph (1), after "Subject to" insert "paragraph (2A) and";

(b) in paragraph (2), after "paragraph" insert "(2A) or"; and

(c) after paragraph (2) insert—

"(2A) The monitoring local authority must ensure that for Type A supplies (which serve premises located in the area of the authority)—

(a) audit monitoring for—

(i) radon (item 6A) in Table C of Schedule 1;

(ii) total indicative dose (item 8) in that table; and

(iii) tritium (item 10) in that table,

is carried out in accordance with Schedule 2A and that the measured values obtained are representative of the quality of the water consumed throughout the year; and

(b) for total indicative dose (item 8) in Table C of Schedule 1—

(i) the method used for monitoring compliance (including screening);

(ii) the method used for calculating the total indicative dose; and

(iii) the method of analysis used (including its performance characteristics),

are each in accordance with the relevant requirements of Schedule 5A.".

Amendment of regulation 22

5. In regulation 22 (monitoring: general provisions) of the 2006 Regulations—

(a) in paragraph (1), after "Samples" insert "required";

(b) in paragraph (2), for "Samples" substitute "Subject to regulation 21(2A), samples"; and

(c) in paragraph (4), after "Schedule 5" insert "(where applicable),".

Amendment of regulation 24

6.—(1) In regulation 24(2) (monitoring: total indicative dose and tritium) of the 2006 Regulations, before sub-paragraph (a) insert—

> "(ia) contain a level of radon that is well below the concentration specified for radon (item 6A) in column (3) of Table C of Schedule 1;".

(2) In the cross heading for regulation 24 (monitoring: total indicative dose and tritium), after "**Monitoring:**" insert "**radon,**".

Amendment of Schedule 1

7. In Schedule 1 (prescribed concentrations and values) of the 2006 Regulations—

(a) in Table C (indicator parameters)—

(i) after the row relating to item 6 (conductivity) insert—

"6A.	Radon (for radioactivity)**(ii)**	100	Bq/l"

;

(ii) in the row relating to item 8 (total indicative dose), omit "**(ii)**" and "/year"; and

(iii) in the row relating to item 10 (tritium), after "(for radioactivity)" insert "**(iii)**"; and

(b) in the notes to Table C, for note **(ii)** substitute—

"**(ii)** Remedial action is to be deemed justified on radiological protection grounds, without further consideration, where radon concentrations exceed 1,000 Bq/l.

(iii) If the concentration of tritium exceeds this value, an analysis of the presence of other artificial radionuclides must be also carried out by Scottish Water.".

Amendment of Schedule 2

8. In Schedule 2 (parameters, monitoring and sampling frequencies) of the 2006 Regulations, in Table B (audit monitoring: Type A supplies), after the row relating to item 28 (polycyclic aromatic hydrocarbons) insert—

"28A.	Radon	1	1	Y"

.

Insertion of Schedule 2A

9. After Schedule 2 (parameters, monitoring and sampling frequencies) of the 2006 Regulations insert—

"SCHEDULE 2A Regulation 21(2A)

MONITORING OF RADIOACTIVE SUBSTANCES

General principles and monitoring frequencies

1.—(1) Subject to sub-paragraphs (2) and (3), the monitoring local authority must monitor Type A supplies, which serve premises located in the area of the authority, for—

(a) radon (item 6A) in Table C of Schedule 1;

(b) total indicative dose (item 8) in that table; and

(c) tritium (item 10) in that table.

(2) Where the Scottish Ministers, by notice in writing to the monitoring local authority, confirm that they have established that total indicative dose, radon or, as the case may be, tritium ("the parameter") is not likely to be present, for a period specified in the notice, in a Type A supply in concentrations which could exceed the prescribed concentration or value for that parameter, the monitoring local authority is not required to monitor the supply for the parameter during the period specified in the notice.

(3) In case of naturally occurring radionuclides—

(a) where previous results show that the concentration of radionuclides in the supply is stable, the minimum sampling and analysis frequencies are to be decided by the Scottish Ministers, and confirmed by notice in writing to the monitoring local authority, taking into consideration the risk to human health; and

(b) where the Scottish Ministers, by notice in writing to the monitoring local authority, confirm that they are satisfied (on the basis of representative surveys, monitoring data or other reliable information) that levels of radon, tritium and the calculated total indicative dose in

a Type A supply (which serves premises located in the area of the monitoring local authority) will, for a period specified in the notice, remain below the prescribed concentration or value for each parameter, the monitoring local authority is not required to monitor the supply for these parameters during the period specified in the notice.

(4) Where sub-paragraph (3)(b) applies, the Scottish Ministers must communicate the grounds for the decision to the European Commission and provide the Commission with the necessary documentation supporting that decision, including the findings of any surveys, monitoring or investigations carried out.

Radon

2.—(1) Subject to paragraphs 5 and 6, the monitoring local authority must ensure that representative surveys are undertaken to determine the scale and nature of likely exposures to radon in Type A supplies (serving premises located in the area of the authority) originating from different types of groundwater sources and wells in different geological areas.

(2) The surveys must be designed in such a way that underlying factors, and especially the geology and hydrology of the area, radioactivity of rock or soil, and well type, can be identified and used to direct further action to areas of likely high exposure.

(3) Monitoring of radon concentrations must be carried out if the monitoring local authority has reason to believe, on the basis of the results of the representative surveys or other reliable information, that the prescribed concentration or value for radon might be exceeded.

Tritium

3.—(1) Subject to paragraphs 5 and 6, the monitoring local authority must monitor Type A supplies (serving premises located in the area of the authority) for tritium where—

(a) an anthropogenic source of tritium or other artificial radionuclides is present within the catchment area for the supply; and

(b) it cannot be shown on the basis of other surveillance programmes or investigations that the level of tritium is below the prescribed concentration or value for tritium.

(2) Where monitoring for tritium is required by sub-paragraph (1), samples must be taken in accordance with regulation 23(1) (as read with regulation 22).

(3) If the concentration of tritium in any such sample exceeds the prescribed concentration or value for tritium, the monitoring local authority must carry out an investigation of the presence of other artificial radionuclides.

Total indicative dose

4.—(1) Subject to paragraphs 5 and 6, the monitoring local authority must monitor Type A supplies (serving premises located in the area of the authority) for total indicative dose where—

(a) a source of artificial radioactivity or elevated natural radioactivity is present; and

(b) it cannot be shown on the basis of other representative monitoring programmes or other investigations that the level of total indicative dose is below the prescribed concentration or value for that parameter.

(2) Where sub-paragraph (1) requires monitoring (of radionuclide levels) only in relation to a source of artificial radioactivity, samples must be taken in accordance with regulation 23(1) (as read with regulation 22).

(3) Where sub-paragraph (1) requires monitoring (of radionuclide levels) in relation to a source of elevated natural radioactivity, the Scottish Ministers must specify, by notice in writing to the monitoring local authority, the frequency of the monitoring required of—

(a) gross alpha activity;

(b) gross beta activity; or

(c) individual natural radionuclides,

for screening strategies pursuant to regulation 21(2A)(b) and Schedule 5A.

(4) Where sub-paragraph (3) applies, the frequency specified may vary from a single check measurement to the frequency which would otherwise apply under regulation 23(1).

(5) Where a single check for natural radioactivity is specified under sub-paragraph (3), the monitoring local authority must carry out a further check if any change occurs in relation to the supply which is likely to influence the concentrations of radionuclides in the supply.

Water treatment

5. Where Type A supply (serving premises located in the area of a monitoring local authority) is treated to reduce the level of radionuclides, the monitoring local authority must monitor the supply for total indicative dose, radon and tritium in accordance with regulation 23(1) (as read with regulation 22) to verify the continued efficacy of that treatment.

Averaging

6. In circumstances where the prescribed concentration or value for total indicative dose, radon or, as the case may be, tritium is exceeded in a sample taken in relation to a Type A supply (serving premises located in the area of a monitoring local authority), the Scottish Ministers must specify, by notice in writing to the monitoring local authority, the extent of resampling necessary to ensure that the measured values are representative of an average activity concentration for a full year.".

Amendment of Schedule 3

10. In the table in Schedule 3 (circumstances and conditions to be considered by a monitoring local authority: decision on audit monitoring) of the 2006 Regulations—

(a) after the row relating to polycyclic aromatic hydrocarbons (item no. (26)) insert—

"(26A)	Radon	• The supply is located in an area which puts it at high risk of exceeding the prescribed concentration or value for radon (at the point referred to in regulation 7(5)) and the supply is not open to atmospheric pressure before that point.	• The monitoring local authority for the supply in question is in receipt of a notice under regulation 24(1) which specifies, for an area in which that supply is located, that the condition in regulation 24(2)(ia) is satisfied (and the notice applies to that extent)."

;

(b) in the row relating to total indicative dose (item no. (33))—

(i) in column (3), for the words from "for" to the end, substitute "of the supply indicates that the total indicative dose is not likely to be well below the prescribed concentration or value for that parameter."; and

(ii) in column (4), for the words from "If" to the end, substitute "The monitoring local authority for the supply in question is in receipt of a notice under regulation 24(1) which specifies, for an area in which that supply is located, that the condition in regulation 24(2)(a) is satisfied (and the notice applies to that extent); and

(c) in the row relating to tritium (item no. (35))—

(i) in column (3), for the words from "Tritium", where it first occurs, to the end, substitute "Routine monitoring of the supply indicates that tritium is not likely to be well below the prescribed concentration or value for that parameter."; and

(ii) in column (4), for the words from "If" to the end, substitute "The monitoring local authority for the supply in question is in receipt of a notice under regulation 24(1) which specifies, for an area in which that supply is located, that the condition in regulation 24(2)(b) is satisfied (and the notice applies to that extent).

Insertion of Schedule 5A

11. After Schedule 5 (analytical methodology) of the 2006 Regulations insert—

"SCHEDULE 5A Regulation 21(2A)

MONITORING FOR TOTAL INDICATIVE DOSE AND ANALYTICAL PERFORMANCE CHARACTERISTICS

Monitoring for compliance with the total indicative dose

1.—(1) The monitoring local authority may use reliable screening strategies to indicate the presence of radioactivity in Type A supplies which serve premises located in the area of the authority.

(2) These strategies may include screening for—

(a) certain radionuclides or an individual radionuclide; or

(b) gross alpha activity or gross beta activity.

Screening for certain radionuclides or for an individual radionuclide

2.—(1) Where screening is carried out for certain radionuclides or for an individual radionuclide, the monitoring local authority must carry out an analysis of additional radionuclides if, in relation to any supply referred to in paragraph 1—

(a) one of the activity concentrations of a radionuclide listed in column 2 of the table below exceeds 20% of the corresponding derived concentration in column 3; or

(b) the tritium concentration exceeds the prescribed concentration or value for tritium.

(2) The monitoring local authority must, in deciding which radionuclides require to be measured for each supply, take into account all relevant information about likely sources of radioactivity.

Derived concentrations for radioactivity in water intended for human consumption[(a)]		
Origin	*Radionuclide*	*Derived concentration (Bq/l)*
Natural	U-238[(b)]	3.0
	U-234[(b)]	2.8
	Ra-226	0.5
	Ra-228	0.2
	Pb-210	0.2
	Po-210	0.1
Artificial	C-14	240
	Sr-90	4.9
	Pu-239 / Pu-240	0.6
	Am-241	0.7
	Co-60	40
	Cs-134	7.2
	Cs-137	11
	I-131	6.2

Notes

[(a)] This table includes values for the most common natural and artificial radionuclides. These are precise values, calculated for a dose of 0.1 mSv, an annual intake of 730 litres and using the dose coefficients laid down in Table A of Annex III to Council Directive 96/29/Euratom laying down basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionizing radiation(**a**). Derived concentrations for other radionuclides may be calculated on the same basis.

[(b)] This allows only for the radiological properties of uranium, not for its chemical toxicity.

Screening for gross alpha activity and gross beta activity

3.—(1) The monitoring local authority may use screening strategies for gross alpha activity and gross beta activity (or, where appropriate, residual beta activity after subtraction of the potassium-40 activity) to monitor a supply referred to in paragraph 1 for total indicative dose.

(2) Subject to sub-paragraph (3), screening levels must be set at—

(a) 0.1 Bq/l for gross alpha activity; and

(b) 1.0 Bq/l for gross beta activity.

(3) The monitoring local authority may set alternative levels to those specified in sub-paragraph (2) if it can demonstrate that these will ensure that a total indicative dose of 0.1 mSv is not exceeded.

(4) If the gross alpha activity is less than 0.1 Bq/l and the gross beta activity is less than 1.0 Bq/l, the monitoring local authority may assume that the total indicative dose is less than 0.1 mSv.

(5) Where sub-paragraph (4) applies, the monitoring local authority is not required to carry out a radiological investigation unless it is aware—

(a) that specific radionuclides are present in the water; and

(b) that these are liable to cause an indicate dose in excess of 0.1 mSv.

(6) If the gross alpha activity exceeds 0.1 Bq/l or the gross beta activity exceeds 1.0 Bq/l, the monitoring local authority must carry out an analysis for specific radionuclides.

(7) The monitoring local authority must, in deciding which radionuclides require to be measured for the purposes of sub-paragraph (6), take into account all relevant information about likely sources of radioactivity.

(8) If elevated levels of tritium are detected in a sample, the monitoring local authority must also measure the gross alpha activity and gross beta activity in that sample.

Calculation of the total indicative dose

4.—(1) The total indicative dose must be calculated from—

(a) the measured radionuclide concentrations and the dose coefficients laid down in Table A of Annex III to Council Directive 96/29/Euratom; or

(b) more recent information recognised by the Scottish Ministers,

on the basis of an annual intake of water of 730 litres for adults.

(2) Where the following formula is satisfied, the monitoring local authority may assume that the total indicative dose is less than 0.1 mSv and that no further investigation is required—

$$\sum_{i=1}^{n} \frac{C_i\,(obs)}{C_i\,(der)} \leq 1$$

where—

"$C_i\ (obs)$" refers to the observed concentration of radionuclide "i";

(**a**) OJ L 159, 29.6.1996, p. 1, as amended by Corrigendum (OJ L 314, 4.12.1996, p. 20).

"C_i *(der)*" refers to derived concentration of radionuclide "*i*"; and

"*n*" refers to the number of radionuclides detected.

Performance characteristics and methods of analysis

5. For each parameter or radionuclide listed in column 1 of the table below, the method of analysis used must be capable of measuring activity concentrations with at least the limit of detection specified for that parameter or radionuclide in column 2.

Parameter / radionuclide	*Limit of detection (in Bq/l)*[(a)(b)]
Tritium	10[(c)]
Radon	10[(c)]
gross alpha activity	0.04[(d)]
gross beta activity	0.4[(d)]
U-238	0.02
U-234	0.02
Ra-226	0.04
Ra-228	0.02[(e)]
Pb-210	0.02
Po-210	0.01
C-14	20
Sr-90	0.4
Pu-239 / Pu-240	0.04
Am-241	0.06
Co-60	0.5
Cs-134	0.5
Cs-137	0.5
I-131	0.5

Notes—

[(a)] The limit of detection must be calculated according to the ISO standard 11929: Determination of the characteristic limits (decision threshold, detection limit and limits of the confidence interval) for measurements of ionising radiation - Fundamentals and application, with probabilities of errors of 1st and 2nd kind of 0.05 each.

[(b)] Measurement uncertainties must be calculated and reported as complete standard uncertainties, or as expanded standard uncertainties with an expansion factor of 1.96, according to the ISO Guide for the Expression of Uncertainty in Measurement.

[(c)] The limit of detection for tritium and for radon is 10% of the corresponding prescribed concentration or value for the parameter.

[(d)] The limit of detection for gross alpha activity and gross beta activities is 40% of the screening values of 0.1 Bq/l and 1.0 Bq/l respectively.

[(e)] This limit of detection applies only to initial screening for total indicative dose for a new water source. If initial checking indicates that it is unlikely that Ra-228 exceeds 20% of the derived concentration, the limit of detection may be increased to 0.08 Bq/l for routine Ra-228 nuclide specific measurements, until a subsequent re-check is required.".

PART 3

PUBLIC WATER SUPPLIES (SCOTLAND) REGULATIONS 2014

Amendment of regulation 2

12. In regulation 2(1) (interpretation) of the 2014 Regulations, after the definition of "human consumption purposes" insert—

““indicative dose” means the committed effective dose for one year of ingestion resulting from all radionuclides whose presence has been detected in a supply of water intended for human consumption purposes, of natural and artificial origin, but excluding tritium, potassium-40, radon and short-lived radon decay products;”.

Amendment of regulation 6

13. In regulation 6 (monitoring: general provisions) of the 2014 Regulations—

(a) in paragraph (3), for “paragraph (4)” substitute “paragraphs (4) and (6A)”;

(b) in paragraph (6)—

(i) at the end of sub-paragraph (b) insert “and”; and

(ii) omit sub-paragraphs (d) and (e);

(c) after paragraph (6) insert—

“(6A) Scottish Water must ensure—

(a) that audit monitoring for—

(i) indicative dose (item 14) in Table C;

(ii) radon (item 14A) in Table C; and

(iii) tritium (item 15) in Table C,

is carried out in accordance Schedule 2A and that the measured values obtained are representative of the quality of the water consumed throughout the year; and

(b) that, for indicative dose (item 14) in Table C—

(i) the method used for monitoring compliance (including screening);

(ii) the method used for calculating the indicative dose; and

(iii) the method of analysis used (including its performance characteristics),

are each in accordance with the relevant requirements of Schedule 3A.”;

(d) in paragraph (7)—

(i) after “(item 14)” insert “, radon (item 14A)”;

(ii) at the end of sub-paragraph (a), omit “or”; and

(iii) after sub-paragraph (a), insert—

“(aa) in the case of radon, contains level of radon that are, in the opinion of the Scottish Ministers, significantly below the prescribed concentration or value for that parameter; or”;

(e) in paragraph (8)—

(i) after “in relation to” insert “radon or”; and

(ii) after “levels of” insert “radon or, as the case may be,”; and

(f) omit paragraph (9).

Amendment of regulation 9

14. In regulation 9(1) (number of samples) of the 2014 Regulations, after “regulations” insert “6(6A),”.

Amendment of Schedule 1

15. In Schedule 1 (prescribed concentrations and values) of the 2014 Regulations—

(a) in Part 2 of Table C (indicator parameters)—

(i) in the row relating to item 14 (indicative dose), omit “/year”;

(ii) after that row, insert—

“14A.	Radon[(e)]	100	Bq/l	Supply point[(b)]”

; and

(iii) in the row relating to item 15 (tritium), after "Tritium" insert "[f]";

(b) in the notes to Table C, after the note for "[c]" insert—

"[e] Remedial action is to be deemed justified on radiological protection grounds, without further consideration, where radon concentrations exceed 1,000 Bq/l.

[f] If the concentration of tritium exceeds this value, an analysis of the presence of other artificial radionuclides must be also carried out by Scottish Water."; and

(c) after Table C (and the notes to that table), omit the definition of "Indicative dose".

Amendment of Schedule 2

16. In Schedule 2 (monitoring) of the 2014 Regulations—

(a) in Table 2, for the row relating to item 44 (indicative dose) substitute—

"44.	Indicative dose[b]
44A.	Radon[b]"

;

(b) in Table 3, for the row relating to item 16 (indicative dose) substitute—

"16.	Indicative dose
16A.	Radon"

; and

(c) after Table 4, in the final paragraph, omit ""Indicative dose",".

Insertion of Schedule 2A

17. After Schedule 2 (monitoring) of the 2014 Regulations insert—

"SCHEDULE 2A Regulation 6(6A)

MONITORING OF RADIOACTIVE SUBSTANCES

General principles and monitoring frequencies

1.—(1) Subject to sub-paragraphs (2) and (3), Scottish Water must monitor the water it supplies, or intends to supply, for human consumption purposes for—

(a) indicative dose (item 14) in Table C;

(b) radon (item 14A) in Table C; and

(c) tritium (item 15) in Table C.

(2) Where the Scottish Ministers, by notice to Scottish Water, confirm that they have established that indicative dose, radon or, as the case may be, tritium ("the parameter") is not likely to be present, for a period specified in the notice, in a supply of water for human consumption purposes in concentrations which could exceed the prescribed concentration or value for that parameter, Scottish Water is not required to monitor the supply for the parameter during the period specified in the notice.

(3) In case of naturally occurring radionuclides—

(a) where previous results show that the concentration of radionuclides in the supply is stable, the minimum sampling and analysis frequencies are to be decided by the Scottish

Ministers, and confirmed by notice to Scottish Water, taking into consideration the risk to human health; and

(b) where the Scottish Ministers, by notice to Scottish Water, confirm that they are satisfied (on the basis of representative surveys, monitoring data or other reliable information) that levels of radon, tritium and the calculated indicative dose in a supply of water for human consumption purposes will, for a period specified in the notice, remain below the prescribed concentration or value for each parameter, Scottish Water is not required to monitor the supply for these parameters during the period specified in the notice.

(4) Where sub-paragraph (3)(b) applies, the Scottish Ministers must communicate the grounds for the decision to the European Commission and provide the Commission with the necessary documentation supporting that decision, including the findings of any surveys, monitoring or investigations carried out.

Radon

2.—(1) Subject to paragraphs 5 and 6, Scottish Water must ensure that representative surveys are undertaken to determine the scale and nature of likely exposures to radon in water it supplies, or intends to supply, for human consumption purposes originating from different types of ground water sources and wells in different geological areas.

(2) The surveys must be designed in such a way that underlying factors, and especially the geology and hydrology of the area, radioactivity of rock or soil, and well type, can be identified and used to direct further action to areas of likely high exposure.

(3) Monitoring of radon concentrations must be carried out if Scottish Water has reason to believe, on the basis of the results of the representative surveys or other reliable information, that the prescribed concentration or value for radon might be exceeded.

Tritium

3.—(1) Subject to paragraphs 5 and 6, Scottish Water must monitor the water it supplies, or intends to supply, for human consumption purposes for tritium where—

(a) an anthropogenic source of tritium or other artificial radionuclides is present within the catchment area for the supply; and

(b) it cannot be shown on the basis of other surveillance programmes or investigations that the level of tritium is below the prescribed concentration or value for tritium.

(2) Where monitoring for tritium is required by sub-paragraph (1), samples must be taken in accordance with regulation 9(1) and (4).

(3) If the concentration of tritium in any such sample exceeds the prescribed concentration or value for tritium, Scottish Water must carry out an investigation of the presence of other artificial radionuclides.

Indicative dose

4.—(1) Subject to paragraphs 5 and 6, Scottish Water must monitor the water it supplies, or intends to supply, for human consumption purposes for indicative dose where—

(a) a source of artificial radioactivity or elevated natural radioactivity is present; and

(b) it cannot be shown on the basis of other representative monitoring programmes or other investigations that the level of indicative dose is below the prescribed concentration or value for that parameter.

(2) Where sub-paragraph (1) requires monitoring (of radionuclide levels) only in relation to a source of artificial radioactivity, samples must be taken in accordance with regulation 9(1) and (4).

(3) Where sub-paragraph (1) requires monitoring (of radionuclide levels) in relation to a source of elevated natural radioactivity, the Scottish Ministers must specify, by notice to Scottish Water, the frequency of the monitoring required of—

(a) gross alpha activity;

(b) gross beta activity; or

(c) individual natural radionuclides,

for screening strategies pursuant to regulation 6(6A)(b) and Schedule 3A.

(4) Where sub-paragraph (3) applies, the frequency specified may vary from a single check measurement to the frequency which would otherwise apply under regulation 9(1) and (4).

(5) Where a single check for natural radioactivity is specified under sub-paragraph (3), Scottish Water must carry out a further check if any change occurs in relation to the supply which is likely to influence the concentrations of radionuclides in the supply.

Water treatment

5. Where Scottish Water supplies, or intends to supply, water for human consumption purposes which is treated to reduce the level of radionuclides, Scottish Water must monitor the supply for indicative dose, radon and tritium in accordance with regulation 9(1) and (4) to verify the continued efficacy of that treatment.

Averaging

6. In circumstances where the prescribed concentration or value for indicative dose, radon or, as the case may be, tritium is exceeded in a sample taken in relation to a supply, or intended supply, of water by Scottish Water for human consumption purposes, the Scottish Ministers must specify, by notice to Scottish Water, the extent of resampling necessary to ensure that the measured values are representative of an average activity concentration for a full year.".

Insertion of Schedule 3A

18. After Schedule 3 (analysis: methods and capabilities) of the 2014 Regulations insert—

"SCHEDULE 3A Regulation 6(6A)

MONITORING FOR INDICATIVE DOSE AND ANALYTICAL PERFORMANCE CHARACTERISTICS

Monitoring for compliance with the indicative dose

1.—(1) Scottish Water may use reliable screening strategies to indicate the presence of radioactivity in water it supplies, or intends to supply, for human consumption purposes.

(2) These strategies may include screening for—

(a) certain radionuclides or an individual radionuclide; or

(b) gross alpha activity or gross beta activity.

Screening for certain radionuclides or for an individual radionuclide

2.—(1) Where screening is carried out for certain radionuclides or for an individual radionuclide, Scottish Water must carry out an analysis of additional radionuclides if, in relation to any supply referred to in paragraph 1—

(a) one of the activity concentrations of a radionuclide listed in column 2 of the table below exceeds 20% of the corresponding derived concentration in column 3; or

(b) the tritium concentration exceeds the prescribed concentration or value for tritium.

(2) Scottish Water must, in deciding which radionuclides require to be measured for each supply, take into account all relevant information about likely sources of radioactivity.

Derived concentrations for radioactivity in water intended for human consumption[a]		
Origin	*Radionuclide*	*Derived concentration (Bq/l)*
Natural	U-238[b]	3.0
	U-234[b]	2.8
	Ra-226	0.5
	Ra-228	0.2
	Pb-210	0.2
	Po-210	0.1
Artificial	C-14	240
	Sr-90	4.9
	Pu-239 / Pu-240	0.6
	Am-241	0.7
	Co-60	40
	Cs-134	7.2
	Cs-137	11
	I-131	6.2

Notes—

[a] This table includes values for the most common natural and artificial radionuclides. These are precise values, calculated for a dose of 0.1 mSv, an annual intake of 730 litres and using the dose coefficients laid down in Table A of Annex III to Council Directive 96/29/Euratom laying down basic safety standards for the protection of the health of workers and the general public against the dangers arising from ionizing radiation(**a**). Derived concentrations for other radionuclides may be calculated on the same basis.

[b] This allows only for the radiological properties of uranium, not for its chemical toxicity.

Screening for gross alpha activity and gross beta activity

3.—(1) Scottish Water may use screening strategies for gross alpha activity and gross beta activity (or, where appropriate, residual beta activity after subtraction of the potassium-40 activity) to monitor a supply referred to in paragraph 1 for indicative dose.

(2) Subject to sub-paragraph (3), screening levels must be set at—

(a) 0.1 Bq/l for gross alpha activity; and

(b) 1.0 Bq/l for gross beta activity.

(3) Scottish Water may set alternative levels to those specified in sub-paragraph (2) if it can demonstrate that these will ensure that an indicative dose of 0.1 mSv is not exceeded.

(4) If the gross alpha activity is less than 0.1 Bq/l and the gross beta activity is less than 1.0 Bq/l, Scottish Water may assume that the indicative dose is less than 0.1 mSv.

(5) Where sub-paragraph (4) applies, Scottish Water is not required to carry out a radiological investigation unless it is aware—

(a) that specific radionuclides are present in the water; and

(b) that these are liable to cause an indicate dose in excess of 0.1 mSv.

(6) If the gross alpha activity exceeds 0.1 Bq/l or the gross beta activity exceeds 1.0 Bq/l, Scottish Water must carry out an analysis for specific radionuclides.

(7) Scottish Water must, in deciding which radionuclides require to be measured for the purposes of sub-paragraph (6), take into account all relevant information about likely sources of radioactivity.

(**a**) OJ L 159, 29.6.1996, p. 1., as amended by Corrigendum (OJ L 314, 4.12.1996, p. 20).

(8) If elevated levels of tritium are detected in a sample, Scottish Water must also measure the gross alpha activity and gross beta activity in that sample.

Calculation of the indicative dose

4.—(1) The indicative dose must be calculated from—

(a) the measured radionuclide concentrations and the dose coefficients laid down in Table A of Annex III to Council Directive 96/29/Euratom; or

(b) more recent information recognised by the Scottish Ministers,

on the basis of an annual intake of water of 730 litres for adults.

(2) Where the following formula is satisfied, Scottish Water may assume that the indicative dose is less than 0.1 mSv and that no further investigation is required—

$$\sum_{i=1}^{n} \frac{C_i\,(obs)}{C_i\,(der)} \leq 1$$

where—

"C_i *(obs)*" refers to the observed concentration of radionuclide "*i*";

"C_i *(der)*" refers to derived concentration of radionuclide "*i*"; and

"*n*" refers to the number of radionuclides detected.

Performance characteristics and methods of analysis

5. For each parameter or radionuclide listed in column 1 of the table below, the method of analysis used must be capable of measuring activity concentrations with at least the limit of detection specified for that parameter or radionuclide in column 2.

Parameter / radionuclide	*Limit of detection (in Bq/l)*[(a) (b)]
Tritium	10[(c)]
Radon	10[(c)]
gross alpha activity	0.04[(d)]
gross beta activity	0.4[(d)]
U-238	0.02
U-234	0.02
Ra-226	0.04
Ra-228	0.02[(e)]
Pb-210	0.02
Po-210	0.01
C-14	20
Sr-90	0.4
Pu-239 / Pu-240	0.04
Am-241	0.06
Co-60	0.5
Cs-134	0.5
Cs-137	0.5
I-131	0.5

Notes—

[(a)] The limit of detection must be calculated according to the ISO standard 11929: Determination of the characteristic limits (decision threshold, detection limit and limits of the confidence interval) for measurements of ionising radiation - Fundamentals and application, with probabilities of errors of 1st and 2nd kind of 0.05 each.

[b] Measurement uncertainties must be calculated and reported as complete standard uncertainties, or as expanded standard uncertainties with an expansion factor of 1.96, according to the ISO Guide for the Expression of Uncertainty in Measurement.

[c] The limit of detection for tritium and for radon is 10% of the corresponding prescribed concentration or value for the parameter.

[d] The limit of detection for gross alpha activity and gross beta activities is 40% of the screening values of 0.1 Bq/l and 1.0 Bq/l respectively.

[e] This limit of detection applies only to initial screening for indicative dose for a new water source. If initial checking indicates that it is unlikely that Ra-228 exceeds 20% of the derived concentration, the limit of detection may be increased to 0.08 Bq/l for routine Ra-228 nuclide specific measurements, until a subsequent re-check is required.".

Authorised to sign by the Scottish Ministers

St Andrew's House,
Edinburgh
2015

EXPLANATORY NOTE

(This note is not part of the Regulations)

These Regulations amend the Private Water Supplies (Scotland) Regulations 2006 and the Public Water Supplies (Scotland) Regulations 2014 with the aim of further protecting human health from the adverse effects of any contamination of water supplied for human consumption purposes.

In particular, they make further provision to implement Council Directive 2013/51/Euratom laying down requirements for the protection of the health of the general public with regard to radioactive substances in water intended for human consumption(**a**) ("the Directive").

Part 1 makes provision for citation, commencement, extent and interpretation.

Part 2 amends the Private Water Supplies (Scotland) Regulations 2006 ("the 2006 Regulations").

Part 3 amends the Public Water Supplies (Scotland) Regulations 2014 ("the 2014 Regulations").

The powers in section 2(2) of the European Communities Act 1972 (c. 68) ("the 1972 Act") are exercised so far as may be necessary (to supplement the other powers cited) for the purposes of implementing, or enabling the implementation of, obligations arising under or by virtue of the Directive, and for the purposes of dealing with matters arising out of or related to any such obligations. In particular, the powers in section 2(2) of the 1972 Act enable changes to be made to the 2006 Regulations and the 2014 Regulations which have the effect of indirectly modifying—

- regulation 17 and 18 of the 2006 Regulations to allow remedial action in relation to radon involving domestic distributions systems (pursuant to Article 7 of the Directive), and
- regulations 17 to 23 of the 2014 Regulations to allow remedial action in relation to radon involving domestic distribution systems (pursuant to Article 7 of the Directive).

A business and regulatory impact assessment has been prepared for these Regulations. A copy of this may be obtained from the Scottish Government, Victoria Quay, Leith, Edinburgh, EH6 6QQ.

(**a**) OJ L 296, 7.11.2013, p.12.

Annex D

Partial
Business and Regulatory Impact Assessment

Title of Proposal

The Private and Public Water supplies (Miscellaneous Amendments) (Scotland) Regulations 2015

Purpose and Intended Effect

- **Background**

  Currently drinking water in Scotland is regulated under the following domestic legislation:-

  - The Private Water Supplies (Scotland) Regulations 2006
  - The Water Scotland Act 1980
  - The Public Water Supplies (Scotland) Regulations 2014

  The Council Directive 2013/51/Euratom ("the new Directive") provides the requirements for monitoring radioactive substances in drinking water. This needs to be transposed into our current drinking water quality legislation.

  The new Directive specifically refers to Radon, Tritium and Indicative Dose(ID). Tritium and ID have previously been partly transposed into the 2014 and 2006 Regulations.

  It is our intention to fully transpose this new Directive into our current legislative framework. It is likely this transposition will impact on Scottish Water, Local Authorities and businesses which utilise a private water supply.

- **Objective**

  The current private and public water supplies Regulations already specify how drinking water in Scotland should be monitored and regulated. Monitoring requirements for total indicative dose and tritium have already been transposed, with parametric values and monitoring frequencies in place.

  The parametric value for radon and monitoring frequencies need to be transposed. Analytical performance characteristics must also be included in the regulations for radioactive substance analysis.

- **Rationale for Government Intervention**

  To fully transpose the new Directive, ensuring this new Directive is fully implemented into Scottish Legislation. To ensure we are not subject to infraction proceedings.

Drinking water supplies impact on a number of policy areas, such as, health, tourism and housing. These regulations contribute to the Healthier strategic objective, as well as the National Outcome that we live longer, healthier lives.

Consultation

- **Within Government**
  Colleagues in Department for Environment, Food and Rural Affairs (DEFRA) (Drinking Water Inspectorate (DWI)) and DWI Northern Ireland have been consulted on this. Scottish Government Legal Department (SGLD) have also been consulted.

- **Public Consultation**

  A formal consultation on these Regulations will take place from 3rd July to 28th August 2015.

- **Business**

  We have already consulted Scottish Water on the inclusion of a new parametric value for radon in the public consultation on the consolidation and amendments to the Public Water Supplies (Scotland) Regulations 2014. No concerns were highlighted by Scottish Water or any of the responders. Scottish Water are in the process of gaining laboratory accreditation for radon analysis and staff training is in place.

  It is our intention to consult businesses on this during the public consultation. The consultation will be sent specifically to business representative groups – these are:

  Scottish Land and Estates
  SNFU
  Scottish Independent Hostels (admin@hostel-scotland.co.uk)
  Association of Scottish Self Caterers (secretary@assc.co.uk)
  British Home and Holiday Park Association (J.Wilson@bhhpa.org.uk)
  Scottish Association of Landlords (info@scottishlandlords.com)

  Local Authorities have also agreed to send the consultation to up to ten businesses registered on their Private Water Supplies (PWS) register.

  Once responses have been received, if required, we will undertake further consultation with the businesses involved.

Options

Option 1 – Do Nothing

If no amendments are made then the Directive will remain partially transposed.

As we have not fully transposed a European Directive we may be subject to infraction proceedings.

Option 2 – Fully transpose the new Directive

The Council Directive 2013/51/Euratom provides the requirements for monitoring radioactive substances in drinking water. The new Directive specifically refers to Radon, Tritium and Indicative Dose (ID).

Once transposed in domestic legislation we will fully comply with the Directive.

Sectors and Groups Affected

Scottish Water

Owners and users of some private water supplies (PWS), particularly those on Type A supplies.

Local authorities with responsibility for monitoring Type A private water supplies.

Benefits

The benefits of option 1 there are no real benefits from option one. Businesses may benefit in the short term as they won't have to meet the additional sampling and analytical costs for radon monitoring.

The benefits of option 2 are that there will be a rigorous surveying, sampling and monitoring programme in place for radon in drinking water. As the Directive will be fully implemented, there is no infraction risk.

Costs

There are no additional costs associated with option 1 for Scottish Water or businesses on private water supplies. However, the cost of infraction to the Scottish Government could be as much as a £10million lump sum and possible daily substantial fines of thousands of pounds for continued non-compliance.

Option 2 will result in some additional costs for Scottish Water, Local Authorities, and businesses which use a private water supply. These costs are likely to be in relation to accreditation for laboratories, equipment, staff training and analysis.

A report carried out on behalf of DEFRA on the implication of the new Directive requirements for radon in drinking water has suggested the following costs:-

Laboratory based gamma spectrometry system - £70,000 - £90,000
LS Counting Spectrometer - £30,000 - £50,000
Staff training and Laboratory Accreditation - £5,000 - £10,000

Additional staff time per sample – 90mins – 160mins

Businesses on a private water supply may incur the costs of additional sampling and analysis fees in the order of £50 - £100 per sample. Not all private water supplies will require monitoring as only those at high risk of presence of radon will be sampled. The majority of private water supplies are in the lowest sampling frequency category and the monitoring frequency will be once per year. It should be noted that the private water supply regulations currently state that local authorities may charge for costs incurred, but this is capped at £435 per supply.

There may be a requirement for sampling training for local authority Environmental Health Officers. Dissolved radon in water is readily degassed once containment pressure is released, and therefore sampling requires specific training. Local authorities may opt to sub-contract sampling to the analysing laboratory.

The Scottish Government commissioned a survey in 2014/15 to assess which supplies will require monitoring due to their specific characteristics. Based on the results from this survey we would anticipate that Scottish Ministers will consider that monitoring is not required from supplies originating from surface water sources and that only a proportion of ground water sources will require monitoring due to the nature of the geology in the area. We estimate that between 477 and 779 supplies will be monitored annually with costs per year in the range of £58,000 to £94,000.

A monitoring survey is currently ongoing and the results from this survey will be used to refine monitoring costs for the final BRIA.

Monitoring data obtained during 2015 shows the vast majority of those supplies sampled to contain radon at levels significantly below 100Bq/l and all results are below the health action value of 1000Bq/l. We do not anticipate the need to the installation of water treatment to reduce the presence of radioactive substances in water.

Scottish Firms Impact Test

As previously stated, we have already consulted with Scottish Water, it is our intention to consult businesses on a private water supply during the public consultation. The consultation will be sent specifically to business representative groups – these are:

Scottish Land and Estates
SNFU
Scottish Independent Hostels (admin@hostel-scotland.co.uk)
Association of Scottish Self Caterers (secretary@assc.co.uk)
British Home and Holiday Park Association (J.Wilson@bhhpa.org.uk)
Scottish Association of Landlords (info@scottishlandlords.com)

This section will be updated with the results of these discussions at Final BRIA stage.

Competition Assessment

Using the Competition and Markets Authority Competition Filter questions we have concluded that the proposals will neither directly or indirectly limit the number or range of suppliers, limit the ability of suppliers to compete or reduce suppliers' incentives to compete vigorously.

Test Run of Business Forms

There are no new forms of business.

Legal Aid Impact Test

There will be no impact on the legal aid fund. There is no scope for legal aid to be sought or awarded. There is no court procedure involved.

Enforcement, Sanctions and Monitoring

The options will be enforced in the same way other water quality issues are, the regulations do not include any changes to the current enforcement provisions.

On public supplies, the Drinking Water Quality Regulator for Scotland (DWQRS) has the power to serve an enforcement notice on Scottish Water to require improvements to drinking water quality. Scottish Water provide a monthly data return of all regulatory sample results to Scottish Ministers and DWQRS, this will continue and DWQRS will monitor compliance with the standards in these regulations.

On Private Water Supplies, only businesses whose supplies are assessed by the DWQRS as requiring radon monitoring will be sampled at least once a year and have their risk assessment reviewed annually. Every five years the local authority will complete another full risk assessment. If supplies are failing local authorities will still have the power to serve an improvement notice, stipulating what improvements will be required to the supply. Local authorities provide an annual data return to DWQRS who monitors local authorities compliance with their sampling duties and provides an annual report to Scottish Ministers both on this and on the quality of private water supplies in Scotland.

Implementation and Delivery Plan

The proposal will be implemented in legislation - The Private and Public Water Supplies (Miscellaneous Amendments) (Scotland) Regulations 2015. These Regulations will come into force on 28th November 2015.

- **Post-Implementation Review**

  The DWQRS will monitor the impact of the introduction of a threshold value for radon in drinking water and consider any practical or unforeseen consequences as they arise.

Summary and Recommendation

Option 2 is being recommended. To ensure there is no infraction risk this Directive must be implemented.

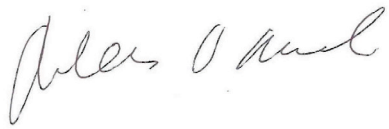
- **Summary costs and benefits table**

Option	Total benefit per annum: - economic, environmental, social	Total cost per annum: - economic, environmental, social - policy and administrative
1	No real benefit, businesses in the short term won't incur any additional costs.	Costs to Scottish Government for infraction. Cost up to £10m lump sum and additional daily fines.
2	Fully compliant with the Directive, no infraction risk. Drinking water monitored for radioactive substances.	Additional financial burden for Scottish Water and Local Authorities for equipment and training. Scottish Water are to incur costs in the order of £160,000, when establishing the laboratory method. Businesses using a private water supply may incur additional monitoring and sampling costs in the order of £50-£100 per annum for affected supplies. In total the additional monitoring costs for drinking water supplies is expected to be in the range £58,000 - £94,000.

Declaration and publication

I have read the Partial Business and Regulatory Impact Assessment and I am satisfied that, given the available evidence, it represents a reasonable view of the likely costs, benefits and impact of the leading options. I am satisfied that the business impact has been/will be assessed with the support of businesses in Scotland.

Signed:



Date: 22 June 2015

Minister's name: Dr Aileen McLeod

Minister's title: Minister for Environment, Climate Change and Land Reform

Scottish Government Contact point:

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